

PATENT  
Attorney Docket No. 213256

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Robert D. Swain, et al.

Art Unit: Unassigned

Application No.

Examiner: Unassigned

Filed:

For: METHOD OF DETERMINING WEAR

**PRELIMINARY AMENDMENT**

Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

Prior to the examination of the above-identified patent application, please enter the following amendments and consider the following remarks.

**AMENDMENTS**

*IN THE SPECIFICATION:*

Page 1, after the title, please insert the following sentence:

This application is a continuation of copending U.S. application 09/361,632 filed on July 19, 1999.

*IN THE CLAIMS:*

Please cancel claims 1-50.

Please add the following claims:

51. A method for determining wear in a machine comprising:

providing a first material of a first color;

providing a second material of a second color;

melting the first and second materials in the machine to obtain a third material of a third color which has a first color value;

obtaining a comparison of the first color value with a second color value, a difference between the first color value and the second color value indicates wear in the machine.

52. The method as in claim 51 wherein the second color value is obtained from a color chip.

53. The method as in claim 51 wherein the second color value is obtained from a control part.

54. The method as in claim 51 wherein the second color value is obtained from a predetermined line on a graph.

55. The method as in claim 51 wherein the second color value is obtained from a predetermined mathematical equation.

56. The method as in claim 51 wherein the machine has a screw and a barrel which are separated by a distance, the difference between the first color value and the second color value indicates a change in the distance and wear in the machine.

57. The method as in claim 51 further comprising:  
after a specified period of time  
providing the first material of the first color;  
providing the second material of the second color;

melting the first and second materials in the machine to obtain a third material which has a second color value.

58. The method as in claim 57 further comprising the step of creating a graph with color value on one axis and time on the other axis, placing the first color value and second color value on the graph and forming a line with the values.

59. The method as in claim 58 further comprising the step of extrapolating the line beyond the values to determine the time when the color value will reach a predetermined value.

60. The method as in claim 57 further comprising after a second specified period of time:

providing the first material of the first color;  
providing the second material of the second color;  
melting the first and second materials in the machine to obtain a third material which has a third color value.

61. The method as in claim 60 further comprising the step of creating a graph with color value on one axis and time on the other axis, placing the color values on the graph and forming a line with the values.

62. The method as in claim 61 further comprising the step of extrapolating the line beyond the values to determine the time when the color value will reach a predetermined value.

63. The method as in claim 57 further comprising obtaining a mathematical equation which represents the relationship between the values and the time period.

64. The method as in claim 63 wherein the equation is used to determine the time when the color value will reach a predetermined value.

65. The method as in claim 51 wherein the first material is in pellet form and the second material is in pellet form.

66. The method as in claim 65 wherein the first material and second material are premixed.

67. The method as in claim 51 wherein the first material is in pellet form and the second material is in liquid form.

68. The method as in claim 51 wherein the first material is a precolored compound and the second material is a color concentrate.

69. The method as in claim 68 wherein the first color is yellow, the second color is blue and the third color is green.

70. The method as in claim 68 wherein the first color is white, the second color is blue and the third color is light blue.

71. The method as in claim 51 wherein the first material is a natural resin and the second material is a color concentrate.

72. The method as in claim 51 wherein the first material is a natural resin and the second material is a colorant.

73. The method as in claim 72 wherein the colorant is selected from the group consisting of: a pigment; a dye; and a combination of a pigment and a dye.

74. The method as in claim 51 wherein the machine is an extruder.

75. The method as in claim 51 wherein the machine is an injection molding machine.

76. The method as in claim 51 wherein the third material is molded into a part.

77. The method as in claim 76 wherein the first color value is obtained from the part.

78. The method as in claim 51 wherein the first color value is obtained using a measuring device.

79. The method as in claim 78 wherein the measuring device is a spectrophotometer.

80. The invention as in claim 54 wherein the predetermined line is obtained by measuring the color of the third material at various intervals of time.

81. The invention as in claim 54 wherein the predetermined line corresponds to the abrasiveness of the first material or the second material.

82. The invention as in claim 81 wherein a second predetermined line corresponds to the abrasiveness of a different first material or second material.

83. The invention as in claim 55 wherein the predetermined equation is obtained by measuring the color of the third material at various intervals of time.

84. The invention as in claim 55 wherein the predetermined equation corresponds to the abrasiveness of the first material or the second material.

85. The invention as in claim 84 wherein a second predetermined equation corresponds to the abrasiveness of a different first material or second material.

86. A method for determining wear in a machine comprising:

providing a first material of a first color;

providing a second material of a second color, which will be melted with the first material in the machine to obtain a third material of a third color which has a first color value;

obtaining a comparison of the first color value with a second color value, a difference between the first color value and the second color value indicates wear in the machine.

87. A method for determining wear in a machine using a first material of a first color and a second material of a second color which are melted in the machine to obtain a third material of a third color, the method comprising:

at a first period of time, obtaining a first sample of the third material and measuring the color of the third color to obtain a first color value using a measuring device;

obtaining a comparison of the first color value with a second color value, a difference between the first color value and the second color value indicates wear in the machine.

88. A method for determining the performance of a machine comprising:

providing a first material of a first color;  
providing a second material of a second color;  
melting the first and second materials in the machine to obtain a third material of a third color which has a first color value;

obtaining a comparison of the first color value with a second color value, a difference between the first color value and the second color value indicates performance of the machine.

89. A method for determining the performance of a machine comprising:

providing a first material of a first color;  
providing a second material of a second color;  
melting the first and second materials in the machine to obtain a third material of a third color;  
forming the third material into a part;  
obtaining the color of the third color at a first location on the part to obtain a first color value and obtaining the color of the third color at a second location on the part to obtain a second color value;  
obtaining a comparison of the first color value with the second color value.

90. A method for determining the performance of a machine comprising:

providing a first material of a first color;

providing a second material of a second color, which will be melted with the first material in the machine to obtain a third material of a third color which has a first color value;

obtaining a comparison of the first color value with a second color value, a difference between the first color value and the second color value indicates the performance of the machine.

91. A method for determining performance of a machine using a first material of a first color and a second material of a second color which are melted in the machine to obtain a third material of a third color, the method comprising:

at a first period of time, obtaining a first sample of the third material and measuring the color of the third color to obtain a first color value;

obtaining a comparison of the first color value with a second color value, a difference between the first color value and the second color value indicates performance of the machine.

REMARKS

*Conclusion*

The application is considered in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,



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Date: October 19, 2001

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WEAR

AMENDMENTS TO SPECIFICATION, CLAIMS, AND ABSTRACT  
MADE VIA PRELIMINARY AMENDMENT

*IN THE SPECIFICATION:*

Page 1, after the title, please insert the following sentence:

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*Amendments to existing claims:*

Please cancel claims 1-50.

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**PENDING CLAIMS AFTER ENTRY OF PRELIMINARY AMENDMENT**

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56. The method as in claim 51 wherein the machine has a screw and a barrel which are separated by a distance, the difference between the first color value and the second color value indicates a change in the distance and wear in the machine.

57. The method as in claim 51 further comprising: after a specified period of time providing the first material of the first color; providing the second material of the second color; melting the first and second materials in the machine to obtain a third material which has a second color value.

58. The method as in claim 57 further comprising the step of creating a graph with color value on one axis and time on the other axis, placing the first color value and second color value on the graph and forming a line with the values.

59. The method as in claim 58 further comprising the step of extrapolating the line beyond the values to determine the time when the color value will reach a predetermined value.

60. The method as in claim 57 further comprising after a second specified period of time:

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61. The method as in claim 60 further comprising the step of creating a graph with color value on one axis and time on the other axis, placing the color values on the graph and forming a line with the values.

62. The method as in claim 61 further comprising the step of extrapolating the line beyond the values to determine the time when the color value will reach a predetermined value.

63. The method as in claim 57 further comprising obtaining a mathematical equation which represents the relationship between the values and the time period.

64. The method as in claim 63 wherein the equation is used to determine the time when the color value will reach a predetermined value.

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66. The method as in claim 65 wherein the first material and second material are premixed.

67. The method as in claim 51 wherein the first material is in pellet form and the second material is in liquid form.

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melting the first and second materials in the machine to obtain a third material of a third color;

forming the third material into a part;

obtaining the color of the third color at a first location on the part to obtain a first color value and obtaining the color of the third color at a second location on the part to obtain a second color value;

obtaining a comparison of the first color value with the second color value.

90. A method for determining the performance of a machine comprising:

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91. A method for determining performance of a machine using a first material of a first color and a second material of a second color which are melted in the machine to obtain a third material of a third color, the method comprising:

at a first period of time, obtaining a first sample of the third material and measuring the color of the third color to obtain a first color value;

obtaining a comparison of the first color value with a second color value, a difference between the first color value and the second color value indicates performance of the machine.